

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/GB2004/004289

International filing date (day/month/year)
11.10.2004

Priority date (day/month/year)
14.10.2003

International Patent Classification (IPC) or both national classification and IPC
E21B17/042, E21B17/06, E21B43/10

Applicant
SPECIALISED PETROLEUM SERVICES GROUP LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**International application No.
PCT/GB2004/004289

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/004289

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-26
	No: Claims	
Inventive step (IS)	Yes: Claims	1-26
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-26
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following documents:

D1: US-A-5 086 843
D2: WO 00/57020 A
D3: US-B1-6 467 547

The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document) a downhole releasable coupling, the coupling comprising a first substantially tubular member (10) having a bore therethrough, one or more raised portions arranged circumferentially on the outer surface, the raised portions defining a first face surrounding the member and substantially perpendicular to the outer surface; and a second tubular member (14) having a bore therethrough, one or more raised portions (38) arranged circumferentially on an outer surface thereof, the raised portions defining a second face (42) surrounding the member and substantially perpendicular to the outer surface, the second face (42) being at an end of the member; wherein the first tubular member (10) slides within the second tubular member (14), and the first and second raised portions can meet to thereby transfer torque when a member is rotated.

The subject-matter of claim 1 differs from this known coupling in that:

- first and second screw threads are provided in the first and second members,
- the raised portions in the first and the second tubular members have a plurality of projections, each projection having a substantially straight portion arranged parallel to the bore and a sloping portion, joining an apex of the projection to a base of an adjacent projection, and
- the first and second screw threads mate and on part engagement of the screw threads, the first and second straight portions can meet to thereby transfer torque when a member is rotated in the direction of the screw threads.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The problem to be solved by the present invention is the application of excessive torque to a threaded coupling it is desired to loosen later. When reverse torque is applied, it is not certain that the joint of the coupling is released, and not some other joint along the string. This problem is solved by the features differentiating claim 1 from the prior art by providing projections that meet on part engagement of the threads, so that the amount of torque applied to that particular joint is limited, thus ensuring a safe release when torque is reversed.

Document D2 discloses a joint for tubular members with twist limiters (35, 85), although the threads are discontinuous in order to allow insertion of the pin into the box, and the purpose is to secure a desired relative position of the end of a conductor cable (66). In document D3, a torque dampening system is included in a coupling to dampen the over-travel of a liner upon its breaking free from an obstruction (see column 1, lines 49 to 64). However, none of these documents hints at the solution provided by the present invention to the objective problem explained above, and therefore claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT).

Claims 2 to 19 are dependent on claim 1 and as such also meets the requirements of the PCT with respect to novelty and inventive step. The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claim 20 and its dependent claims 21 to 26, which therefore are also considered new and.

Re Item VII

Certain defects in the international application (form or content)

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1, D2 and D3 is not mentioned in the description, nor are these documents identified therein.

The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).